

1 41. A method for use by a device operating on a network over which
2 multiple devices belonging to a defined set communicate with each other by
3 transmitting and receiving messages, the method comprising:
4 transmitting the messages at a frequency that hops from one frequency to
5 another over time in accordance with a predictable hopping sequence that
6 determines each frequency in the hopping sequence from a particular identifier
7 associated with one of the devices and a universal time parameter;
8 characterized in that:
9 each frequency in the hopping sequence is determined from a known
10 function of the particular identifier, the universal time parameter, and a seed that
11 changes the hopping sequence from that which would otherwise be determined
12 from the particular identifier and the universal time parameter alone, whereby a
13 pattern of changing transmit frequencies that is detected in messages received
14 by a device outside the defined set is impeded from being associated with the
15 particular identifier associated with one of the devices within the set.

[New Claim 42:]

1 42. The method of claim 41 wherein the seed is changed over time.

[New Claim 43:]

1 43. The method of claim 42 wherein the seed is changed periodically.

[New Claim 44:]

1 44. The method of claim 42 wherein the seed is changed aperiodically.

[New Claim 45:]

1 45. The method of claim 42 wherein the seed is changed when a new
2 session begins on one of the devices in the set.

[New Claim 46:]

1 46. The method of claim 41 wherein the known function is a one-way
2 function.

[New Claim 47:]

1 47. The method of claim 41 wherein the seed is at least a first random or
2 pseudo-random number.

[New Claim 48:]

1 48. The method of claim 45 wherein the seed is at least a first random or
2 pseudo-random number that determines in part the sequence of frequencies in
3 the hopping sequence used for transmitting messages within a current session.

[New Claim 49:]

B2 1 49. The method of claim 47 wherein the seed is a combination of the first
2 random or pseudo-random number and at least a second random or pseudo-
3 random number that determined in part the sequence of frequencies in the
4 hopping sequence used for transmitting messages within at least one previous
5 session.

[New Claim 50:]

1 50. The method of claim 47 wherein the random or pseudo-random
2 number is received in an encrypted form by the device from one of the other
3 devices in the set, and the encrypted random or pseudo-random number is
4 decrypted before being used as the seed.

[New Claim 51:]

1 51. A method for use in a Bluetooth-enabled device operating on a
2 wireless network over which multiple Bluetooth-enabled devices within a defined
3 set communicate with each other by transmitting and receiving messages to and
4 from a master device within the set, the method comprising:
5 transmitting the messages at a frequency that hops from one frequency to
6 another over time in accordance with a predictable hopping sequence that
7 determines each frequency within the hopping sequence from a Bluetooth

8 address (BD_ADDR) associated with the master device and a universal time
9 parameter;

10 characterized in that:

11 each frequency in the hopping sequence is determined from a known
12 function of the master device's BD_ADDR, the universal time parameter, and a
13 seed that changes the hopping sequence from that which would otherwise be
14 determined from the master device's BD_ADDR and the universal time
15 parameter alone, whereby a pattern of changing transmit frequencies that is
16 detected in messages received by a device outside the defined set is impeded
17 from being associated with the master device's BD_ADDR.

[New Claim 52:]

1 52. The method of claim 51 wherein the seed is changed over time.

[New Claim 53:]

1 53. The method of claim 52 wherein the seed is changed periodically.

[New Claim 54:]

1 54. The method of claim 52 wherein the seed is changed aperiodically.

[New Claim 55:]

1 55. The method of claim 52 wherein the seed is changed when a new
2 session begins on one of the devices in the set.

[New Claim 56:]

1 56. The method of claim 51 wherein the known function is a one-way
2 function.

[New Claim 57:]

1 57. The method of claim 51 wherein the seed is at least a first random or
2 pseudo-random number.

[New Claim 58:]

1 58. The method of claim 55 wherein the seed is at least a first random or
2 pseudo-random number that determines in part the sequence of frequencies in
3 the hopping sequence used for transmitting messages within a current session.

[New Claim 59:]

1 59. The method of claim 57 wherein the seed is a combination of the first
2 random or pseudo-random number and at least a second random or pseudo-
3 random number that determined in part the sequence of frequencies in the
4 hopping sequence used for transmitting messages within at least one previous
5 session.

[New Claim 60:]

1 60. The method of claim 57 wherein the random or pseudo-random
2 number is received in an encrypted form by the device from one of the other
3 devices in the set, and the encrypted random or pseudo-random number is
4 decrypted before being used as the seed.

[New Claim 61:]

1 61. Apparatus for use in a device operating on a network over which
2 multiple devices belonging to a defined set communicate with each other by
3 transmitting and receiving messages, the apparatus comprising:
4 means for transmitting the messages at a frequency that hops from one
5 frequency to another over time in accordance with a predictable hopping
6 sequence; and
7 means for determining each frequency in the hopping sequence from a
8 known function of a particular identifier associated with one of the devices in the
9 set, a universal time parameter, and a seed, whereby a pattern of changing
10 transmit frequencies that is detected in messages received by a device outside
11 the defined set is impeded from being associated with the particular identifier
12 associated with one of the devices within the set.

[New Claim 62:]

1 62. The apparatus of claim 61 wherein the seed is changed over time.

[New Claim 63:]

1 63. The apparatus of claim 62 wherein the seed is changed periodically.

[New Claim 64:]

1 64. The apparatus of claim 62 wherein the seed is changed aperiodically.

[New Claim 65:]

1 65. The apparatus of claim 62 wherein the seed is changed when a new
2 session begins on one of the devices in the set.

[New Claim 66:]

B2 1 66. The apparatus of claim of claim 61 wherein the known function is a
2 one-way function.

[New Claim 67:]

1 67. The apparatus of claim 61 wherein the seed is at least a first random
2 or pseudo-random number.

[New Claim 68:]

1 68. The apparatus of claim 65 wherein the seed is at least a first random
2 or pseudo-random number that determines in part the sequence of frequencies in
3 the hopping sequence used for transmitting messages within a current session.

1 **[New Claim 69:]**

2 69. The apparatus of claim 67 wherein the seed is a combination of the
3 first random or pseudo-random number and at least a second random or pseudo-
4 random number that determined in part the sequence of frequencies in the
5 hopping sequence used for transmitting messages within at least one previous
6 session.

[New Claim 70:]

1 70. The apparatus of claim 67 wherein the random or pseudo-random
2 number is received in an encrypted form by the device from one of the other
3 devices in the set, and the processor decrypts the encrypted random or pseudo-
4 random number.

[New Claim 71:]

1 71. Apparatus for use in a Bluetooth-enabled device operating on a
2 wireless network over which multiple Bluetooth-enabled devices within a defined
3 set communicate with each other by transmitting and receiving messages to and
4 from a master device within the set, the apparatus comprising:

5 means for transmitting the messages at a frequency that is hops from one
6 frequency to another over time in accordance with a predicable hopping
7 sequence; and

8 means for determining each frequency in the hopping sequence from a
9 known function of a Bluetooth address (BD_ADDR) associated with the master
10 device, a universal time parameter, and a seed, whereby a pattern of changing
11 transmit frequencies that is detected in messages received by device outside the
12 defined set is impeded from being associated with the master device's
13 BD_ADDR.

[New Claim 72:]

1 72. The apparatus of claim 71 wherein the seed is changed over time.

[New Claim 73:]

1 73. The apparatus of claim 72 wherein the seed is changed periodically.

[New Claim 74:]

1 74. The apparatus of claim 72 wherein the seed is changed aperiodically.

[New Claim 75:]

1 75. The apparatus of claim 72 wherein the seed is changed when a new
2 session begins on one of the devices in the set.

[New Claim 76:]

1 76. The apparatus of claim 71 wherein the known function is a one-way
2 function.

[New Claim 77:]

1 77. The apparatus of claim 71 wherein the seed is at least a first random
2 or pseudo-random number.

[New Claim 78:]

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1 78. The apparatus of claim 75 wherein the seed is at least a first random
2 or pseudo-random number that determines in part the sequence of frequencies in
3 the hopping sequence used for transmitting messages within in a current
4 session.

[New Claim 79:]

1 79. The apparatus of claim 77 wherein the seed is a combination of the
2 first random or pseudo-random number and at least a second random or pseudo-
3 random number that determined in part the sequence of frequencies in the
4 hopping sequence used for transmitting messages within at least one previous
5 session.

[New Claim 80:]

1 80. The apparatus of claim 77 wherein the random or pseudo-random
2 number is received in an encrypted from by the device from one of the other
3 devices in the set, and the processor decrypts the encrypted random or pseudo-
4 random number.
